

PHIL 2180 Introductory Philosophy of Science, Fall 2014 T/TH 11:30 – 12:50, Graham Hall 2310

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Office Hours: Tuesday 4 – 5:30 & Thursday 10:30 – 11, or by appointment

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****Final Exam:** Friday, December 5, 8:30 – 10:30

COURSE DESCRIPTION

In this course we will survey a number of the central issues that arise from a philosophical study of the natural sciences. In the first part of the course we will look at the logical positivist model of science and scientific theories and at some associated concerns, e.g. the observational/theoretical distinction and the problem of underdetermination. After that we will read Thomas Kuhn's landmark work *The Structure of Scientific Revolutions* (1962). The last third of the course will be devoted to some of the issues that have preoccupied philosophers of science since the initial publication of Kuhn's book, including social constructivism and the realism/anti-realism debate. In this part of the course we will read the biologist Richard Lewontin's *Biology as Ideology* (1991). Throughout the course we will look for answers to the following questions: what is the nature of science? Is there a scientific method? Are the sciences rational? Do the entities contained in scientific theories, such as genes and electrons, really exist? And what role does gender play in science?

TEXTS

Robert Klee, ed., *Scientific Inquiry: Readings in the Philosophy of Science* (Oxford University Press), 1999.

Thomas S. Kuhn, *The Structure of Scientific Revolutions* (University of Chicago) 1962, 1970.

Richard C. Lewontin, *Biology as Ideology* (HarperPerennial), 1991.

The rest of the readings will be available to you online, through the library's ARES Course Reserve (indicated on your syllabus as ARES).

E-MAIL COMMUNICATION

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the university and its students.

DROP DATE

The last date to drop one-semester courses, without academic penalty, is Friday, October 31st. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar. (http://www.uoguelph.ca/undergrad_calendar/c08/c08_drop.shtml)

RECORDING OF MATERIALS

Presentations which are made in relation to course work – including lectures – cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate, or guest lecturer.

WHEN YOU CAN'T MEET A COURSE REQUIREMENT*

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration:
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

* See below for specific details on late assignments and missed tests

COPIES OF OUT-OF-CLASS ASSIGNMENTS

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

ACADEMIC MISCONDUCT

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is [detailed in the Undergraduate Calendar](#).

ACCESSIBILITY

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities (soon to be re-named Student Accessibility Services) as soon as possible. For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or refer to the [CSD website](#).

RESOURCES

The Undergraduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate programs. It can be found at: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/>

STUDENT RIGHTS AND RESPONSIBILITIES

Each student at the University of Guelph has rights which carry commensurate responsibilities that involve, broadly, being a civil and respectful member of the University community. The Rights and Responsibilities are detailed in the Undergraduate Calendar:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c14/c14-strightsrespon.shtml>

EVALUATION

1. **Two in-class critical summary tests (2 x 5% = 10%).** You will have two in-class writing assignments (dates and readings are indicated on your syllabus), and each one has two parts.

Part one (3%): To earn 3/5, you must come to class and write a critical summary on the reading assigned. A critical summary requires a precise formulation of some claim or argument from the reading, and a presentation of an objection to this point. These summaries should be no longer than two pages (handwritten, double spaced). You will receive 3% so long as it is clear that you have done the reading and given thought to the argument in question.

Note: You cannot proceed to part two unless you complete part one of the assignment.

Part two (2%): To earn your final 2/5, you must attend the TAs office hours and meet with him, one-to-one, to go over your critical summary. You must do this in a timely manner (e.g. in the first few weeks following the test). This will provide you with essential feedback on your philosophical writing (especially following the first critical summary as the feedback you receive then will be helpful to your essay writing).

Note: There will be no opportunity to make-up the critical summary – *if you miss class, you lose the 5%.*

2. **Mid-term test (30%).** This will be an in-class test. It may include some definitions, true/false questions, short answer and long answer questions.

- *Students unable to write the mid-term test for medical reasons will be required to submit a medical certificate.* Students who miss the test for medical or religious reasons will be given one opportunity to do a rewrite.

3. **One 5-page essay (25%).** Topics for the essay will be handed out 3 weeks prior to the due date.

- *Late essays will be penalized 2% per day unless accompanied by a medical certificate.*
- **Note:** The philosophy department does not accept late essays at the front office and I do not accept emailed essays. Essays must be handed in to me, in person, either in class or during my office hours.

4. **Final exam (35%).** This will take place during the Final Exam Period as scheduled by the College of Arts. The exam may include some definitions, true/false questions, short answer and long answer questions.

- Students who are unable to write the final exam due to medical or religious reasons must follow the guidelines set out in Undergraduate Calendar.

DATE	TOPIC	READINGS
September 4	Class mechanics; Introduction	Klee "Introduction"
September 9 September 11	Logic and critical reasoning; Positivism Observation/Theory Distinction	No reading; Suppe Putnam, Maxwell, van Fraassen
September 16 September 18	Underdetermination; Falsificationism Empiricism; Paradox of the Ravens	Duhem, Popper Quine (Holism part 1, p.72)
September 23 September 25	D-N Model Scientific Explanation *critical summary test	Hempel & Oppenheim Kitcher (p. 181-189)
September 30 October 2	Kuhn Kuhn	<i>Structure</i> Ch. I–VII "
October 7 October 9	Kuhn Kuhn *Essay topics handout	<i>Structure</i> Ch. VIII–XIII <i>Structure</i> Ch. VIII–XIII, <i>Postscript</i>
October 14 October 16	- Study Day – no classes Midterm	
October 21 October 23	Rationality of Science Realism and Experimentation	Hacking; Feyerabend Putnam; Hacking (ARES)
October 28 October 30	Social Constructivism Trust in Science *Essay due	Latour & Woolgar; Bloor Hardwig (ARES)
November 4 November 6	Constructivism and History Feminist Philosophy of Science	Shapin (ARES) Crasnow (ARES)
November 11 November 13	Gender and Biology Gender and Science *critical summary test	Keller (ARES) Longino (ARES)
November 18 November 20	Biology as Ideology Biology as Ideology	<i>Biology</i> , Ch. 1-2 <i>Biology</i> , Ch. 3-4
November 25 November 27	Biology as Ideology Final exam review	<i>Biology</i> , Ch. 5 No reading